

**REMARKS**

The Office Action mailed October 31, 2006 has been carefully reviewed and the foregoing amendment has been made in consequence thereof.

Claims 1-20 are now pending in this application. Claims 1-20 stand rejected. Claims 1, 2 and 7 have been amended. No new matter has been added.

The rejection of Claims 1-2 and 9-20 under 35 U.S.C. § 102(e) as being anticipated by Zur (U.S. Patent 6,714,807) ("Zur") is respectfully traversed.

Zur describes an MRI system imposing N sets of steady-state free precession (SSFP) sequences on an object to be image. The sequences include radio-frequency (RF) excitation pulses that are shifted in phase with respect to the other RF pulses. RF pulses in a first sequence of each set of sequences are each combined with an RF pre-pulse and a de-phasing magnetic gradient to effectively zero magnetization of the system prior to a subsequent RF pulse. Processing a set of received image signals includes performing a Fourier transform on each image signal. Notably, Zur does not describe or suggest that the MRI system corrects a phase error by a phase distribution multiplied by  $1/m$ , after multiplying a phase of the Fourier-transformed data by  $m$  to make water and fat in phase and correcting wraparound of a portion beyond a range of  $\pm \pi$ .

Claim 1 recites a magnetic resonance imaging apparatus including "an acquiring device for acquiring echo data of a plurality of views with spins within a subject brought to an SSFP state and repeating the acquisition for  $k=0$  through  $M-1$  ( $M$  being an integer not less than two;  $k = 0, 1, \dots, M-1$ ) with a step difference in a phase of an RF pulse of  $2\pi \cdot k / M$ ; a transforming device for conducting Fourier transformation on the echo data based on said phase; a separating device that corrects a phase error by a phase distribution multiplied by  $1/m$ , after multiplying the phase of the Fourier-transformed data by  $m$  to make water and fat in phase and correcting wraparound of a portion beyond a range of  $\pm \pi$ ; an adding device for obtaining a sum of absolute values of  $F(0)$  term and  $F(1)$  term of the Fourier-transformed data; and an image producing device for producing an image based on the sum data."

Zur does not describe nor suggest a magnetic resonance imaging apparatus as recited in Claim 1. More specifically, Zur does not describe nor suggest an MRI apparatus that corrects a phase error by a phase distribution multiplied by  $1/m$ , after multiplying a phase of the Fourier-transformed data by  $m$  to make water and fat in phase and correcting wraparound of a portion beyond a range of  $\pm \pi$ . Such features were previously recited in cancelled Claim 8. Rather, in contrast to the present invention, Zur describes an MRI apparatus that generates images without a restriction of repetition time by changing a phase of excitation. Accordingly, for at least the reasons set forth above, Claim 1 is submitted to be patentable over Zur.

Claim 2 recites a magnetic resonance imaging apparatus including “an acquiring device for acquiring echo data of a plurality of views in which a phase difference between water and fat is  $2\pi/m$  ( $m \geq 2$ ) with spins within a subject brought to an SSFP state and repeating the acquisition for  $k = 0$  through  $M - 1$  ( $M$  being an integer not less than two;  $k = 0, 1, \dots, M - 1$ ) with a step difference in a phase of an RF pulse of  $2\pi \cdot k / M$ ; a transforming device for conducting Fourier transformation on the echo data based on said phase; a separating device for separating water data and fat data respectively in  $F(0)$  term and  $F(1)$  term of the Fourier-transformed data using the phase difference between water and fat, said separating device corrects a phase error by a phase distribution multiplied by  $1/m$ , after multiplying the phase of the Fourier-transformed data by  $m$  to make water and fat in phase and correcting wraparound of a portion beyond a range of  $\pm \pi$ ; an adding device for obtaining a sum of absolute values of at least the water data or fat data in the  $F(0)$  term and  $F(1)$  term; and an image producing device for producing an image based on the sum data.”

Zur does not describe nor suggest a magnetic resonance imaging apparatus as recited in Claim 2. More specifically, Zur does not describe nor suggest an MRI apparatus that corrects a phase error by a phase distribution multiplied by  $1/m$ , after multiplying a phase of the Fourier-transformed data by  $m$  to make water and fat in phase and correcting wraparound of a portion beyond a range of  $\pm \pi$ . Such features were previously recited in cancelled Claim 8. Rather, in contrast to the present invention, Zur describes an MRI apparatus that generates images without a restriction of repetition time by changing a phase of excitation.

Accordingly, for at least the reasons set forth above, Claim 2 is submitted to be patentable over Zur.

Claims 9-20 depend, directly or indirectly, from independent Claim 2. When the recitations of Claims 9-20 are considered in combination with the recitations of Claim 2, Applicants submit that dependent Claims 2 likewise are patentable over Zur.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1-2 and 9-20 be withdrawn.

The rejection of Claims 3-6 under 35 U.S.C. § 103 as being unpatentable over Zur in view of Filler et al. (U.S. Patent 5,560,360) ("Filler") is respectfully traversed.

The Office Action uses Zur as basis for a Section 103 rejection. However, Zur is only available as prior art under § 102(e). Zur was filed on June 29, 2001 and patented on March 30, 2004. The present application was filed on September 26, 2003. Under 35 U.S.C. § 103(c), Zur is disqualified as prior art against the present application because the subject matter of Zur and the present application "were at the time the invention was made, owned by the same person and subject to an obligation of assignment to the same person." Therefore, the rejection under 35 U.S.C. § 103(a) is improper.

Accordingly, for at least the reasons set forth above, Claim 6 is submitted to be patentable over Zur in view of Filler.

Claims 2-6 depend from independent Claim 2. When the recitations of Claims 3-6 are considered in combination with the recitations of Claim 2, Applicants submit that dependent Claims 3-6 likewise are patentable over Zur in view of Filler.

The rejection of Claims 7-8 under 35 U.S.C. § 103 as being unpatentable over Zur in view of Filler, and further in view of Zhang et al. (U.S. Patent 6,147,492) ("Zhang") is respectfully traversed.

As discussed above, the Office Action uses Zur as basis for a Section 103 rejection. However, Zur is only available as prior art under § 102(e). Zur was filed on June 29, 2001

and patented on March 30, 2004. The present application was filed on September 26, 2003. Under 35 U.S.C. § 103(c), Zur is disqualified as prior art against the present application because the subject matter of Zur and the present application “were at the time the invention was made, owned by the same person and subject to an obligation of assignment to the same person.” Therefore, the rejection under 35 U.S.C. § 103(a) is improper.

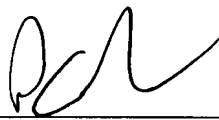
Accordingly, for at least the reasons set forth above, Claim 2 is submitted to be patentable over Zur in view of Filler, and further in view of Zhang.

Claim 8 has been cancelled. Claim 7 depends from independent Claim 2. When the recitations of Claim 7 are considered in combination with the recitations of Claim 2, Applicants submit that dependent Claim 7 likewise is patentable over Zur in view of Filler, and further in view of Zhang.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 7-8 be withdrawn.

In view of the foregoing amendments and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully submitted,



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